

WHAT IS CLAIMED IS:

*Sub A1)* 1. In a solvent extraction process for preparing microspheres of a biodegradable polymer, the improvement comprising:

preparing a homogenized antigen-sucrose matrix and adding a solvent to the sucrose-antigen matrix to form a solution;

preparing a solution of a biodegradable polymer by adding a solvent to the polymer;

adding the biodegradable polymer solution to the antigen-sucrose solution;

adding an oil to the polymer-sucrose-antigen solution to form an emulsion having a controlled viscosity that corresponds to a predetermined average particle size of distributions of microspheres of biodegradable polymers;

centrifuging the emulsion of controlled viscosity and removing the supernatant to obtain microspheres of a predetermined range of particle size distributions.

*B* 2. The process of claim 1, wherein the oil is selected with a predefined viscosity. *to form the microspheres*

3. The process of claim 1, wherein a thickening agent is added to the oil to increase its viscosity.

4. The process of claim 1, wherein the oil is prediluted with an extractant solvent.

5. The process of claim 1, wherein the oil is a paraffin oil in which the viscosity is adjusted by preheating to a temperature of desired viscosity.

6. The process of claim 1, wherein the biodegradable polymer is poly(DL-lactide-co-glycolide). *13*

*Sub G2* 7. The process of claim 6, wherein relative ratios between the lactide and glycolide components is 50:50.

8. The process of claim 7, wherein the average particle size distribution is from about 0.5 to about 2.0 micrometers.

9. The process of claim 8, wherein the average particle size distribution is from about 1.0 to about 7 micrometers.

10. An immunostimulating composition comprising an encapsulating-microsphere of a biodegradable polymer having an average particle size distribution such that the majority of the microspheres will be taken up by the villous epithelium section of the intestines of a mammalian subject when administered as a vaccine against diseases caused by enteropathogenic organisms. *13*

11. An immunostimulating composition comprising an encapsulating-microsphere of a biodegradable polymer having an average particle size distribution such that the majority of the microspheres will be taken up by the Peyer's patch section of the intestines of a mammalian subject when administered as a vaccine against diseases caused by enteropathogenic organisms.